



# Saint Louis County

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**Environmental Services Department • Onsite Wastewater Division**  
307 First St. So., Suite 115 • Virginia, MN 55792  
Phone: (218) 749-0625 or 1-800-450-9278 • Fax: (218) 749-0650

**Ted Troolin**  
Director

## **Overview of wastewater treatment system construction applications**

Enclosed you will find an application for constructing a wastewater treatment system on your property. These treatment systems come in a wide variety of types and designs. The goal is to build one that will give many years of reliable service, protect public health, and meet applicable codes regulating these systems. Built and managed correctly, modern onsite wastewater systems can often provide high levels of treatment for less than the cost of public sewerage.

There are limits to where certain types of systems can be installed. Factors such as property size, topography, water well locations, soil type, sewage volumes, protected waters locations, cost of the system, and reliability all affect what and where systems should be installed.

Along with the application, we ask that the property owner attach a site map drawn to a scale of 1" = 30'-60'. This map should show proposed or actual building locations, water wells, surface waters, contour lines with benchmark, roads and driveways, and soil pit locations. To support the site information, we ask that a worksheet describing soils on the property be included.

We also ask that you attach a plan of the proposed system. This may be superimposed on the site map or supplied separately. Technology specific detailed worksheets, which describe the treatment system, must accompany the plan (worksheets available upon request).

In order to supply this information and gain approval, it is generally necessary to hire a private design contractor to describe the property, fill out the worksheets, and to work with you to develop an acceptable plan. Acceptable means that it is satisfactory to you the property owner, and that it meets County code and best practices for a given situation. The designer/site evaluator should have all the necessary worksheets. The site evaluation, in general, should only be done during the part of the year without snow cover.

Hopefully the proposal will be approved, but sometimes it will not be. Causes for denial include incomplete applications and plans, insufficient property sizes, soil types, seasonally saturated soils, and inappropriate designs. Low areas and small lots are generally viewed as unacceptable for wastewater treatment.

**Thank you for your interest. We have included a checklist of information to gather and submit. If you have questions please feel free to call.**

## **The required steps for the successful installation and operation of an on-site wastewater treatment system:**

- 1. Please fill out the enclosed two-sided application completely. All information requested is necessary for the design of the system and the approval of your permit application.**
- 2. Contact a licensed designer with approved credentials and contract with him or her to conduct a soil evaluation, a general site evaluation of your property, and a design of a wastewater treatment system (see attached list). Your septic system installer may recommend an evaluator, or some installers may be able to do the evaluation themselves. Soils must be described on a soils worksheet. This process will require a soil test pit to be excavated in the area of the proposed system in order to clearly see the soils. A sample soils worksheet is included in the material. Your site evaluator will also prepare a scale drawing of your property showing building locations, contour lines, water wells, water bodies, soil test pit location, building elevations, and any other pertinent property information (we have included a sample drawing). Finally, a proposed design will be prepared by your designer/site evaluator, and must include any technology specific worksheets required for the project. Your designer will have the worksheets necessary. They are also available upon request.**
- 3. Review and discuss your proposal with the designer/site evaluator and your contractor.**
- 4. Submit your application together with the site evaluation, the proposed design, the application fee and completed supporting worksheets. All the information requested needs to be included. **Incomplete or partial applications will be returned.****
- 5. Your proposal will be reviewed by the Environmental Services Department, Onsite Wastewater Division. We may visit the property to verify information and we may contact you or your designer and/or contractor for clarification. If needed, adjustments can be made to the proposal in order to gain approval. Your proposal will either be approved or denied for cause. If approved, a construction permit will be sent to you.**
- 6. Upon possession of a valid "Permit to Construct a Wastewater Treatment System", a licensed contractor may begin construction of the system. Changes to the design must be approved beforehand.**
- 7. After completion of the system, and prior to covering the system, either the property owner or the contractor is required to schedule a final inspection of the system by the Environmental Services Department, Onsite Wastewater Division. The final inspection must be scheduled a minimum of 24 hours in advance, excluding holidays or weekends. If the construction is not satisfactory, both you and the contractor will be notified and corrective orders will be issued.**

**8.** If the final inspection is satisfactory, the system can be covered and a Certificate of Compliance can be issued. We will send you a booklet on septic systems that includes a few routine maintenance suggestions. Your contractor may have additional maintenance suggestions.

**9.** Be careful what you put down the drain and carefully watch your water use. We currently recommend liquid soaps, installing laundry lint filters, spreading your water use throughout the week, checking your toilets for trickling leaks, and just plain common sense as ways that you can achieve long use of your system. Your septic tank has a filter in it that needs to be cleaned on a routine basis. The septic tank should be pumped out after four years or as needed.

**10.** If you have an Operating Permit, it will need to be renewed periodically. See that conditions of the permit such as maintenance and record keeping are being done as required. Periodically the entire system should be checked to see that it is in good operational condition. You may want to hire your contractor to do this.

## **Drawing Instructions**

An accurate drawing conveys information. The septic system drawings are required to communicate enough information for the purpose of permitting and also building the system. They must be done completely, accurately and correctly. The drawing can be made on any size paper provided the following conditions are met. The drawing must be to scale. A range of 1" = 30' to 60' is acceptable. The house location, and as much of the property as is relevant to the proposal, must be shown on the drawing.

### **Below is a list of parameters which are required on the site drawing:**

- Applicable lot lines
- Water bodies: lakes, streams, ponds, streams, rivers, and drainageways
- Buildings including description of current or proposed use
- 2' Contour lines with elevations for proposed septic area, septic expansion area, and building area / Benchmark(s)
- Water wells on the property and neighboring wells within 150 feet of the septic areas
- Soil pit locations and identification numbers
- Scale of drawing and directional arrow showing North
- Roads and driveways
- Floodways and floodplains
- Disturbed soil locations and bedrock outcrops
- Date
- Other pertinent information related to the septic system and its operation

### **Below is a list of parameters which are required on the system drawing:**

- Building sewer location
- Tank locations and descriptions
- Treatment system location and description
- Dispersal system location and description (if applicable)
- Cross sectional view of system
- Comments and details of system
- Expansion area and notations on type of replacement system
- Directional arrow showing North
- Date
- Other pertinent information related to the septic system or its operation



# St.Louis County

## INDIVIDUAL SEWAGE TREATMENT SYSTEM DRAWING

Name: \_\_\_\_\_ Address: \_\_\_\_\_ City: \_\_\_\_\_ ZIP \_\_\_\_\_

CVT PLAT PARCEL # \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ TWN # \_\_\_\_\_ RNG# \_\_\_\_\_ SEC # \_\_\_\_\_

Drawing Type- (A) Design (B) Final Inspection (C) As-Built (D) Site Eval. (E) Other \_\_\_\_\_

Submitted By: (A) Owner (B) Designer (C) Installer (D) SLCHD (E) Other \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

**Checklist of items to be included on drawing is on reverse side of this page**

A large, empty rectangular box with a black border occupies the lower half of the page. It is intended for the drawing content, which is noted to be on the reverse side of the page.

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**INCLUDE ON DRAWING ALL OF THESE ITEMS THAT APPLY:**

- ☐ ACCESS ROAD (LABELED)
- ☐ DRIVEWAY
- ☐ NORTH DIRECTION
- ☐ PROPERTY LINES
- ☐ WETLANDS
- ☐ BEDROCK OUTCROPS
- ☐ SHORELINE
- ☐ STRUCTURES (PROPOSED/EXISTING)
- ☐ SEPTIC SYSTEM (PROPOSED/EXISTING)
- ☐ WELL LOCATION (PROPOSED /EXISTING)
- ☐ SOIL TEST PIT(S)/BORING(S)
- ☐ DIRECTION OF SLOPE AND CONTOURS
- ☐ SETBACKS FROM SEPTIC SYSTEM TO SHORELINE, WELL, BUILDINGS AND PROPERTY LINES (ALL THAT APPLY)
- ☐ SHOW ALL APPLICABLE MEASUREMENTS FOR FINALS AND AS-BUILTS.

Site Evaluation &  
System Design  
for

Dr. Joseph Johnson  
1104 Antler Lane  
Deerwood Twp.  
Lots 28 & 29  
Big Mud Lake 2nd Division

Sample  
Drawing

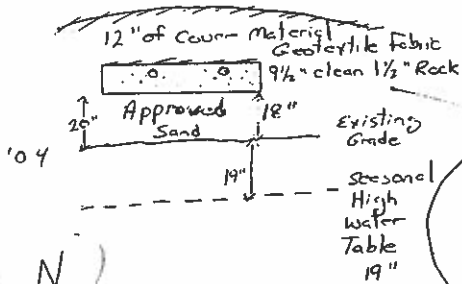
& Design  
Supplied by

Angus McGee  
License # 1010

6-1-01

Phone #  
218  
725-5200

X-Section



N

1" = 40'

Undeveloped  
Land

No wells  
within 150'  
of proposed  
system

Antler Lane

1114  
Antler Lane

1110  
Antler Lane

2" PVC  
pressure test

Proposed  
7' x 30'  
Pole  
Building

Minimum (Lowest)  
Invert 95'

500 gallon  
Pump Tank  
(concrete)

Proposed  
3 Bdrm  
Home

1500 gallon  
Static Tank (concrete)

main Floor Elevation 96'  
(proposed)

Cabin

Sand  
Point  
well  
unknown  
depth

Cabin

Drilled  
well  
23' of  
Casing

Proposed  
well  
location

Existing Cabin  
to be  
removed

OHWM  
86'

200'  
212' of  
Frontage

Big Mud Lake

Replacement  
Conventional  
Mound

Expansion  
Area

Standard Mound

Insulate 4" of  
Extruded  
polyisocyanurate  
minicore 36"

End of  
Road

Undeveloped  
Property

owner  
A. Peters

Notes

- ① Pipe to drain back to Tank Insulate under road
- ② House built on slab
- ③ Minimum dose (demand)  
15 gallons Install elapsed time meter in box
- ④ Homeowner to monitor pump time  
Pump tank every 6 years or as needed



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## Phase I Soils Worksheet (Example)

Name of property owner:

Dr. Joe Johnson

Address/Location of property:

1104 Antler Drive

Evaluator: Angus McGee Date: 5/23/01 Time: 09:00

Site conditions: Partly cloudy, warm, ground covered with dew

Vegetation: Quaking Aspen & Birch

Landscape position: Crest of slight ridge Slope: 4%

Excavation type: Backhoe pit Excavation number and location: Test pit 1  
(see drawing)

Depth (inches)	Texture	Structure  Unstructured Structured Platy	Consistence  Loose Friable Firm	Color Munsell®	Confining Layer  Y/N	Mottles  Y/N	Roots  Y/N	Comments
0-7	Sandy loam	structured	Friable	10YR 3/2	N	N	Y	
7-12	Fine sandy loam	structured	Friable	7.5YR 3/4	N	N	Y	
12-23	Loamy sand	unstructur ed	Loose	7.5 YR 4/4	N	Y	Y	Mottling begins at 19 inches
23-37	Clay loam	platy	Firm	7.5YR 4/3	Y	Y	N	Top 2 inches of layer is mottled

Seasonal High Water Conditions: 19 Inches from surface

Soil Wastewater Loading Rate: 0.6 Gallons per square foot per day

Hydraulic Linear Loading Rate: 5 Gallons per linear foot